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THE FARM INDEX

U.S. Department of Agriculture/June 1973

agriculture and the energy crisis

Outlook

Another banner year unfurls for realized net income on the Nation's farms. Latest official estimates put the figure at over $21 billion. That's at least 9 percent more than last year's $19.2 billion.

The year got off to a strong start. Farm prices boomed along at alltime highs in the first 3 months, lifting realized net farm income to a seasonally adjusted rate of over $22 billion. However, prices may weaken later on. By year's end, prices probably will average only a shade above those in late 1972.

Price, rather than volume, will fuel most of the gain expected in cash receipts from farm marketings. They're slated to approach $70 billion from 1972's $58.5 billion.

But direct Government payments will be slashed this year—by more than $1 billion, bringing the outlay to less than $3 billion. On balance, gross income is projected to tilt upwards by around 16 percent to $77 billion.

Production expenses will make a deeper cut into gross income than a year ago but they will ease as 1973 wears on. Feed and feeder livestock prices showed especially sharp increases early in the year.

The picture for supplies of farm products in second half 1973 is blurred by uncertainties over the weather . . . particularly its impact on the grain-soybean expansion which was encouraged by changes in farm programs.

This year's spurt in retail food prices is expected to average out to 9 percent. Much of this growth is already behind us, ERS reports in the May issue of the *National Food Situation*. Prices in the second half of the year might creep lower if demand and supply projections materialize.

With normal weather, per capita food consumption should scale to a new peak. But the advance over 1972 will be minor in light of the drawdown in 1972 stocks.

Crop foods will lead the way. Increases for fruits, processed vegetables, processed potatoes, and vegetable oils will more than offset declines for fresh vegetables and potatoes, coffee, and cocoa. Among animal products, meat and dairy products will show small increases. Fish consumption will stay the same.

First quarter prices for all food averaged 8 percent above the same quarter a year ago. The Consumer Price Index for food at home was up 9 percent, twice the increase for meals eaten out. Most of the advance in prices at retail was reflected in higher farm prices. The marketing margin was up slightly.

What's being done to boost food supplies? Among other actions taken in recent months—

- USDA is selling Government-owned stocks of most grains.
- Farm programs have been changed so that farmers may plant larger acreages of wheat, feed grains, rice, and soybeans.
- USDA is letting farmers use "set aside" acres for year-round grazing and forage in return for a 30-percent cut in payments.
- All direct export subsidies on agricultural products have been suspended. There are no quantitative restrictions on meat imports. Quota restrictions on cheese and nonfat dry milk have been relaxed.

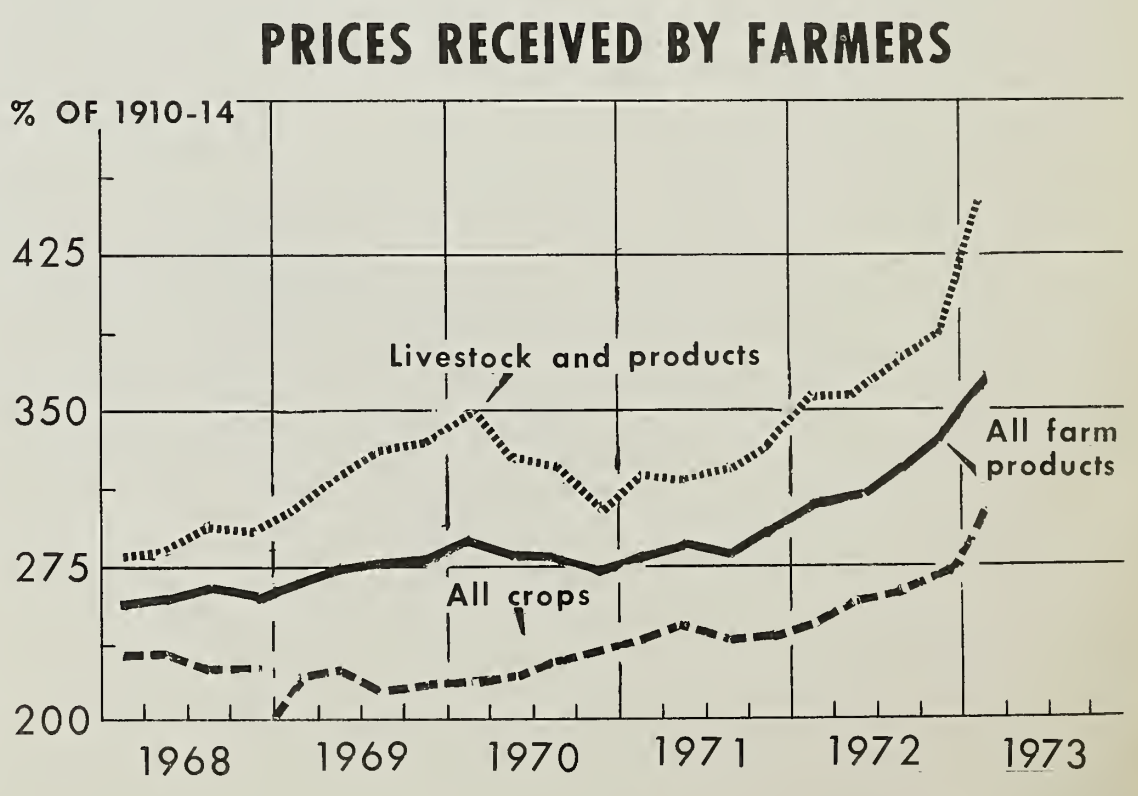
High feed costs have put a damper on expansion in the hog industry. Though the Corn Belt's spring pig crop will be up an estimated 6 percent from a year ago, the increase is rather moderate when considering the especially favorable hog prices in 1973.

Moreover, hog producers have indicated they intend to farrow only 4 percent more sows during June-August—about half as large as the increase during the spring.

However, farmers will probably continue to raise more hogs in the entire second half of '73, and this should result in bigger supplies in January-June 1974.

Hog prices will reach their summer peak in July or early August, then decline in late summer and fall. Barrows and gilts at seven markets averaged about $29 per 100 pounds in both the third and fourth quarters of 1972. They are expected to average above last year in the summer but to drop below by year's end.

In the cattle outlook, it's clear skies for beef supplies. Fed beef output will climb the rest of this year, say ERS livestock people. Supplies of feeder cattle can support the increase based on the modest advance in winter placements and the number of feeder cattle on



farms on January 1.

Summer shipments of fed cattle are apt to continue larger than a year ago. On April 1 there were 3 percent more cattle on feed in weight groups that will make up over half the July-September marketings.

This means fed cattle prices will stay under pressure in the summer since third quarter marketings will be at least as big as spring shipments. Too, the cyclical increase in hog slaughter now underway will lift pork production from the mid-1972 levels.

Earlier forecasts of a dip in milk production this year are borne out by figures for the first 3 months. Output came to about 29 billion pounds, 1 percent under a year ago.

For all of 1973, milk production by the May forecast is expected to total a little lower than 1972's 120.3 billion pounds. This would be the first drop since 1969.

The decline reflects high feed prices and poor quality and quantity of roughage in several key areas. With larger 1973 crops of feed grains and soybeans, feed costs should moderate this summer given normal weather, and milk output may rise in the fall and winter.

Despite lower milk marketings, better prices are pushing up cash receipts —probably to around $7½ billion. But dairymen's gross income is climbing less than costs, so net returns to dairying may run below last year.

At retail, dairy prices are stronger than a year ago. They're likely to hold fairly stable through the summer before rising seasonally in the third quarter. The spread between 1972 and 1973 prices may widen as the year progresses, lifting 1973 averages some 3½ to 4 percent above last year.

Sales of dairy products should improve during the rest of '73, though the overall gain probably won't match last year's 3½ percent. The reasons: the sharper jump in retail dairy prices this year, and slightly smaller dairy supplies due to the sag in milk production.

On the plus side, retail butter prices are easing and this should help boost butter sales. Cheese consumption will be favored by high prices of meats.

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Behind the Slice

You'd never know, judging from a slice of bread, whether the wheat crop weathered a good year. Here's a glimpse at how wheat's selected and mixed to keep a loaf uniform.

You're in a laboratory.

A wheat sample arrives and is heated in sulfuric acid—the first step in a Kjeldahl protein test.

Mixing blades turn a batch of dough, plotting its resistance on graph paper.

And the fragrance of freshly baked bread permeates the lab.

It's all part and parcel of more than a dozen tests that samples from wheat lots undergo in determining their breadmaking qualities.

The Nation's bread—the biggest single user of wheat—comes from hard red winter wheat and hard spring wheat, both relatively high in protein and gluten quality.

But all the wheat is not the same as it comes from the field — bad weather at critical stages of the crop can greatly lower breadmaking qualities.

Millers have to know the breadmaking properties of a particular lot of wheat in order to decide whether or not to buy it and what combinations to use to meet bakers' specific flour requirements.

Follow the crop. Starting in May in Texas as the first wheat crop is harvested and moving north as the summer goes on, flour mills and commercial labs hire college students to take wheat samples at country elevators and send them in for analysis.

From this, reports emerge as to the qualities of wheat in a particular region. The commercial labs furnish subscribers with a weekly report that will tell, in detail, for instance, why "Area 6 in Kansas is running above average. . . ."

Those in the industry thus keep informed of the quality of the crop. Bakers make an effort to keep up with the news at this stage, for if the crop varies much from the norm, they'll have to make adjustments in their baking operations. Their machinery, as is the millers', is set up for a standard process. If a wheat quality measure, such as dough mixing time, should vary greatly from this standard, it could be quite costly for the firms to adjust their equipment. Thus, they seek wheat that falls within certain ranges.

The ultimate—and most critical —test the cereal chemist puts the wheat through is baking it into bread.

The loaves undergo two tests that are the most important in determining the breadbaking qualities of wheat — loaf volume and a "loaf score" that includes texture, crumb color, and absorption.

Wheat "tryouts." But before that, the cereal chemist in the lab has also tested the wheat for protein content —the Kjeldahl protein test, combined the flour and water to judge the dough's plasticity and mobility under mixing conditions via a farinograph, tested its viscosity via an amylograph, and made a series of other tests, such as for mineral content.

The chemist's ability to predict the breadbaking quality of wheat increases as the wheat progresses through the tests that start with samples of the wheat kernel, ground wheat, experimentally milled flour,

and finally, the bread itself, baked from the wheat flour samples.

The results of these tests greatly influence the miller in whether or not he will buy a certain wheat.

Food . . . or feed? A wheat that doesn't yield a favorable percentage of higher value flour can't be profitably milled for bread and would have to be used for lower valued products and for feed.

Each year, growing conditions and price situations change, and transportation varies—all factors that influence wheat purchases. A farmer, for instance, can plant the same variety of wheat in the same field and use the same cultivation practices that brought him a premium crop last year . . . and find that weather or some other circumstance beyond his control will bring him non-premium wheat this year.

The mills have to take into account all these factors—and many more—in buying wheat and blending it for uniform quality for customers.

Team approach. The mill usually takes a team approach in making up its wheat mixes. Although the number of people involved varies by size of operation, usually five job functions are involved: production, quality assurance, sales, procurement, and traffic.

To prepare a general sales price or a specific bid, the team members develop a quote price based on present conditions and future estimates.

The flour specifications are discussed, the market or shipping destinations are outlined, and other items involved in the possible flour order are analyzed.

To help in developing a quote price, the production people will estimate the yield of products, based on experience and type of wheat required.

Tell what's needed. The quality assurance department will outline the general type of wheats required and possible sources if the wheats are not in inventory.

Traffic will estimate the transportation charges, based on source and destination alternatives.

Procurement will estimate the purchase price, based on stocks on hand and market direction.

And finally, sales will estimate prices for byproducts and competitors' price movements.

Together the team will arrive at a a quote price.

The end blend. If the miller puts in a successful bid, he must then put together a wheat mix that meets the specifications which the baker had set forth.

Modern data processing and computer availability allow the cereal chemists to go about this problem in a simplified manner.

By taking the results of his quality analysis on each lot of wheat in inventory, the chemist can set up a wheat mix for the mill.

A mill may have more than 100 bins of differing wheats, each described by the dozen or so qualities that the chemist wishes to consider in blending the wheats into one wheat mix.

The types and characteristics of wheats in inventory constantly change, but it's up to the cereal chemist to find the right combinations to meet customers' specifications uniformly during the year. (*1*)

Dwindling Strawberry Supply Causes Price Hike

Here's why you are paying more for fresh strawberries this season than a year ago: U.S. production and strawberry acreage prospects are below a year ago.

This year, acreage for the important spring crop was 4 percent less than the 42,210 acres harvested in 1972. That 1972 crop was the smallest since 1965.

Although California's acreage and production are slightly higher than last year they will not likely make up for drops in other major producing States. Louisiana is expected to harvest 17 percent less than in 1972. Decreases are also likely in Michigan, Oregon, and Washington.

Imports of fresh strawberries, mostly from Mexico, have also declined. U.S. purchases in 1972 were about 8 million pounds below the previous year's 51.3 million pounds and signs point to even lower imports for the 1973 season.

The smaller berry supply has had its effect on prices. This past March, U.S. producers received 48¢ per pound compared with 28¢ in March 1972. (*2*)

Beans Get a Jump On Cooking Time

Pronto pintos?

They may just be on the way, as a new process developed at USDA's Western Regional Research Laboratory looks good for getting beans down to a 15-minute cooking time.

The lab has developed a way to produce rehydrated, frozen beans that have a bright appearance, natural flavor, and an exceptionally uniform smooth texture.

In a joint survey with ERS, the lab tried these beans out on more than 200 consumers in Berkeley, Calif., and New Orleans. In this instance, they supplied packages of frozen kidney beans and large lima beans to be taken home and prepared.

Most of the consumers simply seasoned and boiled the beans, although some used them in salads, chili, and casseroles.

In general, both the lima and kidney beans rated high with consumers in every aspect on which they were questioned—flavor, appearance, texture, odor, quick-cooking ability.

The majority of the consumers said they liked the quick-cooking beans as well as or better than the beans they usually buy.

About 3 out of every 4 who tried the lima beans said they'd buy them, and about 2 in 3 said they'd buy the kidney beans if they were on the market.

More than 6 out of 10 consumers said they'd buy the beans at 21¢ to 25¢ for a 10-ounce package. In general, the consumers in the West said they usually bought their lima beans frozen and their kidney beans in cans. In contrast, those in the South said they preferred regular dry beans over the more convenient forms because they felt extended cooking improves flavor.

Most of the consumers said they'd like to buy other dry beans in the quick-cooking frozen form.

Leading among their choices were baby lima beans, black-eyed peas, small white beans, pinto beans, garbanzo beans, and pink beans.

The survey concluded that there are a number of varieties of quick-cooking frozen beans that—if priced right—would attract consumers because of their high quality and convenience. (*4*)

Counting Carnations

The carnation, our best-selling cut flower, has buttonholed some more import records.

At 29 million blooms for the first 3 months of '73, imports were twice what they were for all of '70 and well over half of the '72 total.

Last year's 56 million imported carnation blooms set a record in terms of both sheer numbers and in their share of the U.S. carnation market—7.5 percent.

This is a marked increase from the 4.7-percent share a year earlier. And it's considerably above the role imports play in the market for the five major cut flowers as a whole.

Imports of the "big five"—carnations, standard and pompon chrysanthemums, gladioli, and roses—had less than 3 percent of the market in '71, compared with 2 percent in '66.

The major source of foreign carnations is Colombia, followed by other Latin American countries.

They've been able to compete in the U.S. carnation market principally because of favorable climate, lower transportation and labor costs, and aid from the U.S. in the form of capital and technical advice.

Total U.S. carnation sales last year were close to 750 million blooms. California and Colorado produced about 570 million of them, and Colombia, less than 50 million. (*3*)

Meat Boycott Had Little Effect on Prices

What happened to meat prices after consumer sought to lower them by their meat boycott in April?

According to ERS, prices have changed very little so far. The reason is that the boycott triggered a response by packers, retailers, and producers designed to bring supply in line with demand—and leave prices about the same.

The packers and retailers, anticipating the boycott, bought less meat so that they would not have large inventories as consumers reduced purchases. Result: the meat supply during the first week in April —the week of the boycott—was about in balance with sagging consumer demand.

After the boycott, it took a while for consumers to increase their purchases to former levels.

ERS experts say cattle prices may weaken as marketings catch up with the recent holdback. After the extra animals are slaughtered, prices are likely to strengthen again. (*5*)

Tobacco: the quota question

To take advantage of new technology in tobacco production, some farmers would like to see changes in the rules governing the sale and transfer of quotas.

If you were a flue-cured tobacco grower with 3 acres of land, you wouldn't rush out to buy one of the newly developed tobacco harvesters.

Studies show it takes at least 20 acres of flue-cured tobacco—the kind most cigarettes are made of—to economically justify a mechanized operation.

Yet about 70 percent of our acreage allotments for flue-cured are less than 3 acres. And only 1 percent exceed 20 acres.

That's why some tobacco growers favor changes in the tobacco quota program. Specifically, they would like greater freedom to lease, transfer, sell, or buy acreage allotments and production quotas. With a few exceptions the law now forbids producers from selling or transferring allotments and quotas across county and State lines.

Some economists believe that easing these restrictions would lead to larger tobacco farms, and this in turn to the development and adoption of labor-saving machinery. A more flexible program could also cause tobacco production to shift to areas where it can be grown and harvested most efficiently.

Labor pains. Growers complain that finding low-cost labor is a worsening problem, if indeed workers can be found at all in view of the competition from more attractive nonfarm jobs these days.

In the tobacco belt of the South Atlantic area, farm wages doubled in the last decade to $1.53 per hour in 1972. Reflecting the high price of labor, the number of hired farm workers in this area dropped 43 percent during 1962–72 and family workers by 41 percent.

Small producers say they can barely earn a subsistence income from tobacco alone, despite record high tobacco prices.

So some farmers are switching to farm enterprises that require less labor. Meantime, their tobacco allotments go partly or wholly unused for

lack of someone within their counties who desires to lease or buy these allotments.

Allowing transfers across county and State lines would tend to increase the allotment supply in areas most suited to mechanization, according to those who advocate a changed tobacco program.

Just how many tobacco growers want the restrictions relaxed is hard to tell. But a survey by North Carolina University found that three-fourths of the respondents favored sales of flue-cured allotments, which are currently prohibited unless the land is sold as well. Of those in favor, 45 percent favored Statewide sales; 39 percent, sales within the same county; and 16 percent, across State lines.

Official position. In November 1972 the 29-member National Advisory Committee opposed the sale of allotments but generally agreed that legislation should be sought to allow transfer of tobacco allotments within States. USDA officials and committee members were in agreement that such legislation would facilitate greater efficiency of production.

Suppose the present restrictions are removed . . . who gains and who loses?

As one ERS tobacco specialist points out, right now each county is a separate quota market and leasing rates vary widely between counties. One Statewide or beltwide allotment market could result in a more uniform price for each allotment type.

Rent matters. In other words, the buyers of allotments or quotas in what are now low-rent counties might have to pay more if boundary restrictions are removed. Sellers, conversely, would be better off under a changed program. The opposite would be true in the high-rent counties.

Many analysts assume that individual producers would be at least as well off as they are now. Otherwise, they wouldn't make the change.

The ERS specialist believes that would be the case only if farmers have a good awareness of the going market price. Also, farmers may be pressured or misled into a settlement, and this could lead to speculators buying and selling allotments at a profit.

From a geographic standpoint, the economies of areas gaining allotments would stand to benefit, since allotments generate added business for warehousemen, hired farmworkers, farm suppliers, etc.

One such area could be the Coastal Plains counties in the No. 1 tobacco State of North Carolina. Research shows that if county restrictions were removed, allotments would tend to move to the Plains from the North Carolina Piedmont area.

But fewer restrictions might also have this effect: allotments would be concentrated among fewer owners and in fewer tobacco areas. (*6*)

Program Changes

The Federal Government has operated programs to support and stabilize tobacco prices since the early 1930's. Many changes have been made in the programs to make them more effective and to allow growers to more efficiently utilize available technology and resources.

In 1962, Congress first authorized lease and transfer of allotments for flue-cured, Maryland, fire-cured, dark air-cured, and cigar filler and binder tobaccos. Lease and transfer of burley quotas has been authorized only since 1971. Leases are between farms within the same county and the period can range from 1 to 5 years.

In 1967, legislation provided for the sale and permanent transfer of fire-cured, dark air-cured, and sun-cured allotments between farms in the same county. Lease, transfer, and sale across county lines within the same State were authorized in October 1971 for Virginia fire-cured (type 21) and sun-cured (type 37).

Trends in allotment transfers suggest this flexibility apparently has been rewarding to many tobacco farmers.

By 1972 about 30 percent of the effective flue-cured quotas were leased and transferred and 9 percent of burley quotas were leased and transferred. Flue-cured leases averaged 3,574 pounds last year and burley was 1,060 pounds. (*6*)

Farm Mortgage Lending Up in '72, Spurred By Lower Interest Rates

The amount of new farm mortgage money loaned reached a new high in '72, due in large part to lower interest rates.

ERS reports that interest rates, which dipped in the first half of '72, were, in the last half, about 0.5 percentage point below a year earlier and about 1 percent below the peak level of 1970.

Of the three major reporting lenders, life insurance companies loaned $658 million in new farm mortgage money—the largest volume since 1968 and a 52-percent increase over 1971.

Federal land banks loaned $1.8 billion in new farm mortgage money —46 percent above 1971.

And while comparable data are not available for Farmers Home Administration (FHA) loans, the volume of FHA farm ownership loans outstanding as of Sept. 30, 1972, was $2 billion, 12 percent above a year earlier, and rural housing loans totaled $5.1 billion, 38 percent above 1971.

At the close of '72, life insurance companies had outstanding mortgages totaling $5.4 billion, 2 percent above '71.

The average size of farm mortgage loans made by insurance companies in the last half of '72 was $108,890, 45 percent larger than the first half. For the year as a whole, new loans averaged $89,780, 16 percent more than in 1971.

Life insurance companies also had the largest volume of new loan commitments since 1966—$916 million, 47 percent more than in 1971.

Interest rates charged by the life insurance companies for loan commitments decreased in 1972, averaging 8.3 percent, down 0.3 percentage point from 1971.

For Federal land banks, farm mortgage loans as of the close of '72 —$9.1 billion—were 15 percent above a year earlier.

Federal land banks loaned a record $1.8 billion in new money in 1972—up 46 percent from the previous year's high of $1.2 billion.

The average size of loan for Federal land banks was $44,480 in 1972, 17.5 percent more than in 1971.

Federal land bank interest rates declined to the lowest point since rates began going up 4 years ago. At the close of '72, three of the Federal land bank districts were charging 7 percent, down from 7.5 percent a year earlier. The top rate at year's end was 7.75 percent for one land bank district while in 1971, four districts were charging 8 percent. The 1972 decline in interest rates and the farmers' belief that interest rates would not decline appreciably in the near future were factors in the increased volume of new money loaned.

At the end of the year, the Farmers Home Administration had $2.2 billion outstanding in farm ownership loans, direct and insured. This was 7.3 percent above 1971.

The average size of farm ownership loans in the last half of the year was $26,770, 4 percent smaller than the average for the first 6 months of '72.

Farm ownership commitments of $300 million were made during 1972, up 10 percent over '71. (*8*)

FARM POPULATION CHANGES, 1960-1970

For the first time in USDA records, a Southern State does not have the most farm residents.

The No. 1 State is Iowa.

These facts are from a new report on the farm population, spanning the decades from 1970 back to 1910.

It shows the 1960's as continuing the longtime downward trend of the number of people living on farms. By 1970, farm population had dipped to 9.7 million, 6 million fewer than in 1960.

Farm population went down in every State in the 1960's but nowhere as much as in the South. The number of farm residents there was reduced by nearly half during the decade, from 7.2 million to 3.8 million.

The South's rapid loss is principally a result of the mechanization of cotton farming and the near-abandonment of the share-tenant system of farming. In addition, nonfarm areas lured farm residents with higher employment opportunities and living standards. In particular, blacks left the farms at extremely high rates. The South's black farm population decreased by well over 60 percent during the 1960's.

The North Central States lost farm population at a much more modest rate than the South and moved up with the biggest regional share of the Nation's farm population—44 percent as compared with 39 percent for the South. The Northeast and the West had about the same share of the farm population in 1970 as they had in 1960—7 percent and 10 percent, respectively.

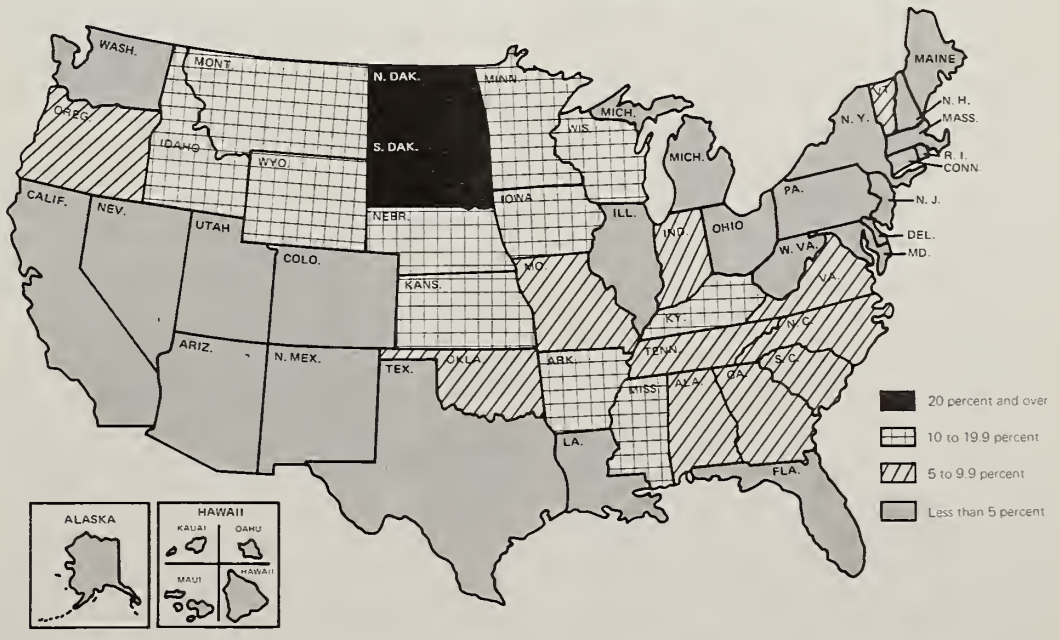
Among the 50 States, Iowa was followed by Minnesota and Illinois as the heaviest farm-populated States. Back in 1960, Iowa was No. 3, Minnesota No. 6, and Illinois No. 7.

The Southern States of North Carolina and Texas previously led in farm population, but both have experienced particularly high rates of loss during the past 2 decades. By 1970, North Carolina had dropped to fifth place and Texas to fourth.

North and South Dakota far outdistanced all other States in percentage of population on farms—both had about 1 out of every 4 residents living on farms in 1970. Throughout the Nation, only 13 States had a farm population that accounted for 10 percent or more of the State's total population.

This is in sharp contrast to 1920, the year when State data first became available. Then, 11 of the 48 States had a majority of their residents living on farms, and two-thirds of the States had a fourth or more of their residents on farms. (*9*)

PERCENT OF STATES' POPULATION ON FARMS: 1970



SHEEP RANCHING BESET WITH PROBLEMS

Lambs are trailed through town because open trail lanes have been taken up in private property. Increasingly, trucks are used to move them.

It's not so easy to be a sheep rancher these days. Though 1972 was a relatively good year for prices, long-range problems remain. Here, ERS takes a look at short- and long-term prospects.

Popular belief has it that one way to fall asleep is to count sheep. But if you're a sheep rancher these days, it might be a good way to worry yourself into insomnia.

In 1939, the number of sheep and lambs on U.S. farms totaled 51.3 million. By early 1973, the inventory had plummeted to 17.7 million, a drop of more than 65 percent and the smallest on record.

Coupled with this has been an almost constant decline in consumption of lamb. We now eat about 3.3 pounds per person per year, compared with 115.9 for beef. Consumption of lamb 30 years ago was nearly double the present figure.

Manmade fibers have also been giving wool fierce competition.

These developments are no cause for celebration in the Western grazing lands where half of the Nation's sheep make their home. In a recent study, ERS took a look at migratory sheep ranching in the important sheep raising States of Utah and Nevada. It found that while the long-range problems of sheep ranching are not likely to go away, 1972 was a year that held some encouraging signs.

Prices jump. With good winter grazing and ideal spring lambing weather, 1972 lambs on the migratory ranches went to market at heavier weights. They brought the highest prices since the 1950's. The amount of wool clipped from each sheep went up, and wool prices were well above the disappointingly low levels of 1971.

The percent of lambs saved at birth was record high at 97, 10 percent above the 1960–64 average. This is largely due to better management practices. Another significant plus was a lower-than-normal rate of death among mature animals.

These factors produced a moderate income year. Net income—return to labor, management, and capital—averaged $14,780 per ranch in 1972, 10 percent less than 1971 but nearly double the 1960–64 average. The rate of return on capital investment was 4.2 percent on the sheep ranches, down 15 percent from 1971 but well above the 0.9 percent recorded in 1960.

Despite the improvement in incomes since the mid-1960's, and even allowing for the higher rate of return on investment, there is considerable apprehension among sheep ranchers. Some feel that short-term gains may in the long run be swallowed up by fundamental problems reflected in the sharply declining sheep numbers.

An important problem is the low price of ewes relative to the price of lambs.

During the past 10 years, ewe

prices averaged less than a fourth of lamb prices. Culled rams are difficult to sell at any price. By contrast, cow prices averaged nearly 60 percent of calf prices, and culled bulls have been bringing handsome sums.

No easy life. Migratory sheep ranching is a difficult business. Good herders are hard to get, and their salaries are more than a third higher than in 1960. Operating expenses last year hit a record high, nearly 4 percent above 1971. Nearly 75¢ of each dollar of income went to pay operating expenses, exclusive of interest on ranch obligations. Many ranch expenses are fixed, and when lamb and wool prices drop ranchers sometimes have difficulty breaking even.

Permits to graze on public land are harder to come by, too. As an expanding population competes for use of public land, sheep ranchers can find themselves squeezed out. Once open trails are taken up in other uses, the result is that sheep sometimes must be trailed through towns and across superhighways.

Sheep ranching is apparently not very attractive to young people. The average age of the sheep ranchers in the ERS study was 55 years; few were under 40. This is partly a reflection of economic uncertainties, which in turn have made it difficult to sell a sheep ranch at a good price.

Finally, even with more lambs being saved at birth, lamb losses are increasing. In 1972, a year when sheep losses dropped, lamb deaths reached an alltime high of 10 percent. Had death losses in 1972 been normal, operator returns would have increased 12 percent, the ERS study reported.

According to some ranchers, one reason for the sharp rise in lamb losses was the banning in February 1972 of systemic poisons such as 1080 in Federal predator control programs.

Taken together, these things provide little cause for optimism. But the future of sheep ranching in the U.S. may not be as bleak as it appears.

Demand is key. Last year, migratory sheep ranchers would have increased their returns by fully a third if prices for culled ewes were as high with respect to lamb prices as cow prices are relative to calves.

Operator returns would also have gone up if culled rams brought a price proportionate to culled bulls.

For this to happen, demand for mutton would have to increase.

ERS experts say progress is being made—though on a small scale—in marketing a new line of frozen lamb products. Processed lamb and mutton also show promise.

In the future, the study says, popular processed meats like bologna, salami, and wieners could gain wide acceptance when made from lamb or mutton. Research is also underway on new products like lamb curry, lamb loaf, and frozen lamb shish kebabs.

For wool, it is indisputable that manmade fibers have cut back the use of wool in men's suits and other articles of clothing. In recent months, however, there has been a swing back toward regular types of woven goods. The industry is hoping that this will boost wool consumption.

Campaigns to promote wool use are also helping. These measures may never put the sheep industry back in the prominent position it held in the 1940's, but there is little doubt they can help. (*10*)

Recycling Poultry Waste Not for Small Operator

Recycling poultry wastes as feed may not be the answer for small egg producers looking for inexpensive ways to curb animal waste pollution.

That was among the findings of an interagency task force which studied the economic feasibility of incorporating processed waste material in feed rations.

Feeding trials have demonstrated that dried layer waste (DLW) can be recycled back through the poultry that produced the waste without having any serious physiological effects on the birds. However, the practice is not recommended by USDA at this time, nor is it approved by the Food and Drug Administration.

In the study of recycled poultry wastes, researchers calculated the net returns to cage layer operations of different sizes when birds were fed varying percentages of wastes.

The flock sizes in this experiment were 10,000, 50,000, and 80,000 birds. The amounts of dried layer waste fed in three test rations were 0, 12½ percent, and 25 percent.

For the 10,000-layer operation, feeding DLW at any level was found to be uneconomical. Costs rose 0.8¢ per dozen eggs for the 12½-percent ration, and 4.4¢ for the 25-percent ration, the task force found.

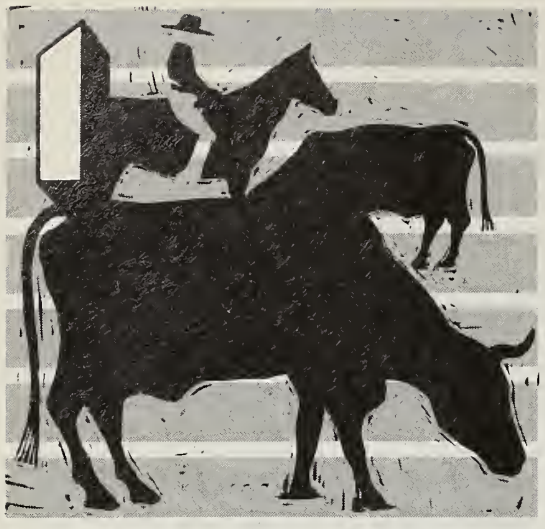
Increased production costs were attributed to higher feed costs per bird, higher per unit costs to handle and spread the manure because of reduced volume, and poorer layer performance.

Net returns showed different results for the larger operations. For the 50,000-bird flock, drying and feeding DLW at the 12½-percent level resulted in lower unit costs of 0.3¢ per dozen eggs compared to the ration with no DLW. For the 80,000-bird flock, costs dropped 0.6¢.

But costs increased at the 25-percent level—by 2.7¢ for the 50,000-layer operation, and 2.2¢ for the largest flock—reflecting poorer layer performance and the higher manure disposal costs.

The task force noted that nearly all this country's layer operations (about 97 percent) now have fewer than 10,000 birds. Thus, only a small group of producers could economically process and feed DLW under today's conditions.

Moreover, feeding at the 12½-percent level utilizes only 40 percent of the waste generated. A substantial portion would still have to be treated or disposed of by land application or other means. (*11*)



Sagging farm production in the Western Hemisphere during 1972 contrasted sharply with rising industry, trade, and incomes.

The hemisphere — excluding the U.S. and Cuba—endured extremes of weather that ultimately reduced total farm output. Dry weather proved disastrous for feed grains and oilseed crops in Argentina, while severe midyear drought in Mexico and Central America hampered production of grains and various food crops.

In South America, unusually wet weather played havoc with crops in Brazil, Peru, Uruguay, and other countries. But in Canada, plummeting farm output was due more to cutbacks in planted acreage than poor weather.

As a whole, the hemisphere registered a 2-percent gain in wheat production, thanks largely to Argentina, which turned out its largest crop since 1964. Canadian wheat output advanced slightly, whereas in Brazil, heavy rains, frost, and disease shaved the wheat harvest by two-thirds.

Coffee harvests were reduced by bad weather in Brazil, Colombia, and parts of Central America, though total Latin American production fell only slightly below trend. Frost last August may further reduce Brazil's '73 crop, but a larger harvest is forecast this year in Colombia.

Setback for feeds. Following 2 years of hefty increases, the hemisphere's feed grain outturn plunged 16 percent to an estimated 58 million tons. Canada anticipated barley surpluses and cut back planted acreage, while drought ravaged 40 percent of Argentina's corn and sorghum crops. This year's outlook calls for considerable improvement in both countries.

For oilseeds, 1972 marked a year of extremes. Canadian rapeseed production dropped 40 percent from its '71 record, but Brazil's soybean crop soared 60 percent to a new high.

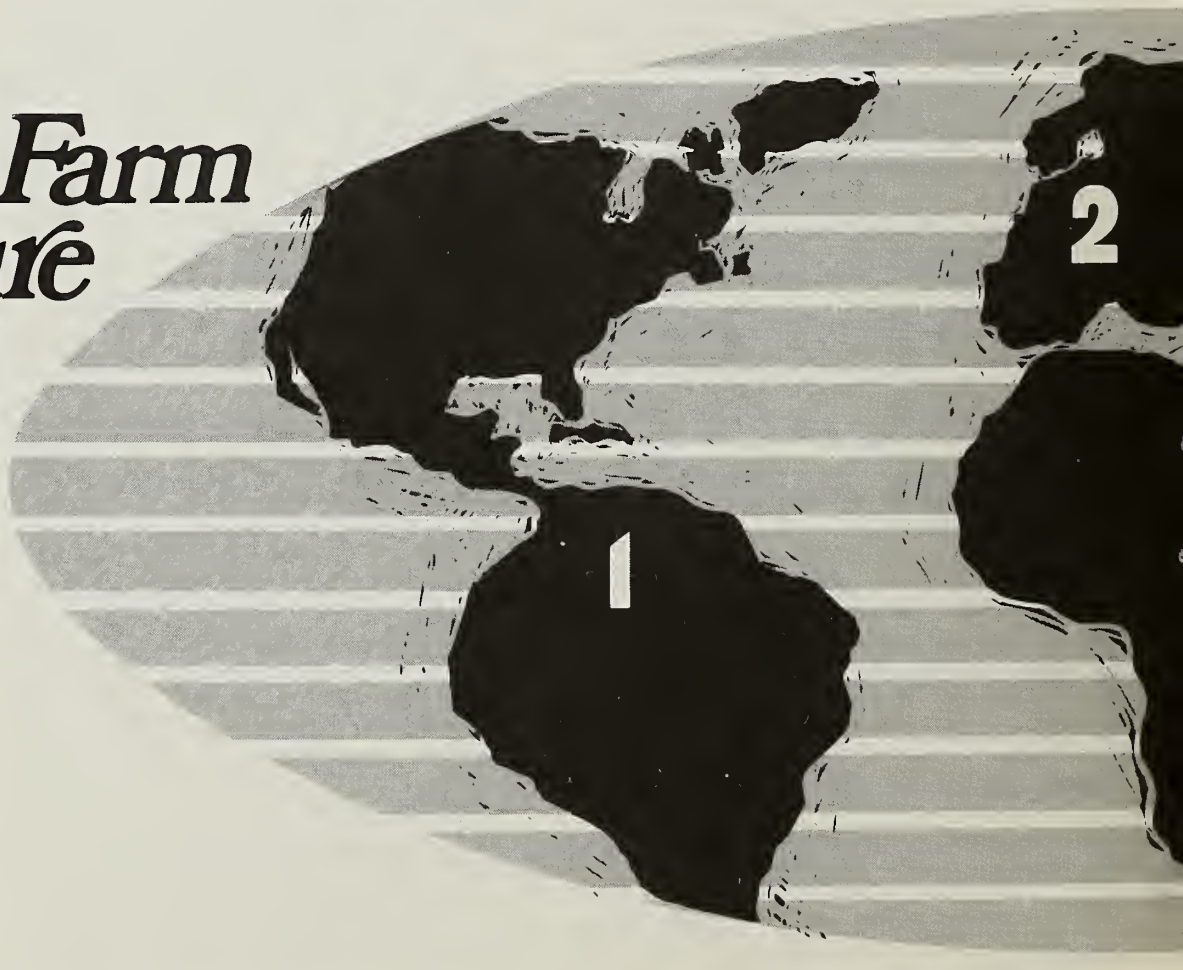
Beef boom. Strong export demand provided impetus for greater beef production in Mexico, Central America, Argentina, and Brazil. Total hemisphere production climbed 7 percent. At the same time, a drop in overall meat production set off higher prices and rationing of supplies in some Latin countries.

Despite the drop in gross farm production, the Western Hemisphere's earnings from agricultural exports hit a record high last year, due to strong world demand and better prices for the region's traditional export commodities.

Wheat, coffee, sugar, cotton, oilseeds, and meat were the biggest export earners. Receipts from feed grains, however, were reduced by poor crops in Canada and Argentina.

Canada, the Caribbean, and Latin America shipped the U.S. a record $2.5 million in farm commodities.

World Farm Picture A Composite View.



U.S. imports of beef and cattle from Mexico and Central America posted heavy gains over year-earlier levels and banana and sugar imports swelled considerably. Higher coffee prices added a significant share to the total value of U.S. imports from the Western Hemisphere.

In Latin America, accelerated export earnings and rising incomes created a strong demand for imports that was reinforced by a drop in per capita food production. U.S. farm exports to Latin America last year totaled nearly $822 million—a gain of nearly $100 million over the '72 record—and shipments to Canada surged to $716 million.

High hopes. Prospects for '73 indicate continued growth in our exports to both Canada and Latin America. Canadians are expected to buy larger amounts of corn, fruits and vegetables, meats, and hides.

Among Latin American countries, import requirements for U.S. wheat, feed grains, fats and oils, and various food products should hold strong throughout the year as the region recovers from last year's poor weather. (*12*)

A bright farm picture in Western Europe last year was marred only by economic uncertainties.

Grain production swelled to 135 million tons—a record for the third straight year. Wheat and feed grains vaulted to record highs, due mainly to higher output within the original European Community (EC-6). And despite a disappointing harvest in France, corn output soared to over 18 million tons.

In the livestock sector, a 5-percent dip in beef and veal production drove red meat output back to around 17 million tons. The downturn largely reflects the response of farmers to favorable milk prices—producers retained cows for dairying rather than selling them for slaughter.

Meantime, higher milk output—about 115 million tons last year—resulted in a steep rise in butter stocks and another butter disposal problem like that of the late sixties.

For 1973, experts see a further upturn in grain production in Western Europe, with special emphasis on increasing wheat and barley output. Corn should merit extra attention too, particularly in France, which hopes to rebound from a '72 decline.

Beef production could slip a little further as farmers continue to rebuild dairy herds—causing the butter surplus situation to worsen. In the longer run, however, beef and veal will eventually trend upward once producers start responding to higher beef prices.

Pork's progress. Pork production fared slightly better during '72 and should gather momentum through this year as gilt numbers continue to grow in major producing regions. But Denmark is an exception as pro-

duction should be lower in 1973. Consumption of pork should also head upward, aided by high prices for beef.

After a lackluster performance in 1971, economic activity picked up throughout Western Europe and held strong into early 1973. But inflation persisted throughout most of the year, with advancing food prices and excessive wage increases contributing to the overall rise in prices.

Currency crisis. The situation was further clouded by the continuing monetary crisis. Following the 10-percent devaluation of the dollar in February 1973, most European nations allowed their currencies to float. Lacking firm price relationships among currencies, the European Community decided to postpone setting 1973/74 farm prices until the end of April.

On January 1, 1973, the EC-6 officially became the EC-9, as Ireland, Denmark, and the United Kingdom took on full membership. EC enlargement spells a setback for future trade with these countries. Last year, U.S. exporters shipped the three new member nations $620 million in farm commodities.

Hardest hit will be U.S. agricultural trade with the United Kingdom, which amounted to $480 million during 1972. Before Britain adopted the protective trade policies of the EC, the U.S. enjoyed easy access to that market for most farm products.

Four-year streak. Last year marked the fourth consecutive year that the value of U.S. farm shipments to Western Europe grew at a rapid rate. Based on preliminary data, U.S. agricultural sales to Western Europe in 1972 registered a 16-percent gain to $3.4 billion. Exports of meats, grains, oilseeds, cotton, tobacco, fruits, and vegetables all posted increases.

Western Europe's farm exports to the U.S. rose by $200 million over 1971 to $1.2 billion last year. Leading exports were processed foods, particularly meats, dairy products, fruits, and vegetables. (*13*)

Agricultural output in Africa and West Asia edged higher in '72 but failed to keep up with population growth.

South Africa — one of Africa's three major producing countries— turned in possibly its best year on record. Stepped-up production of corn, sugarcane, meat, and milk led the farm sector to a 3.5-percent gain over 1971.

Bad beginning. This year got off to a bad start when drought hit numerous parts of South Africa. The corn crop will probably be cut in half from last year's 9.6 million tons and corn exports will be limited. Sugar and wheat crops weren't touched, however, and good harvests are anticipated.

With the accession of the United Kingdom to the European Community, South Africa lost a privileged market for items like fresh and canned fruit, corn, wine, preserved meats, and fishmeal.

South Africa managed to narrow its trade deficit last year when total exports climbed to $2.6 billion and imports fell back to $3.7 billion. This came about largely from import curbs, devaluation of the rand in relation to currencies of main trading partners, a good year for major farm exports, and strong world demand for grains, wool, and sugar.

U.S. exports to South Africa during 1972 totaled nearly $600 million, but farm products accounted for less than a tenth.

Gross agricultural output also inched ahead in Nigeria and Egypt, Africa's other two prime producers. Drought struck northern areas of Nigeria, reducing millet and grain sorghum crops and hampering livestock production. On the brighter side, Nigeria's peanut crop posted a 30-percent advance and its cocoa crop also showed improvement.

In Egypt, total production rose 3 percent as rice output established a record 2.75 million tons. Egypt's cotton crop—the country's main foreign currency earner—also rounded out a good year.

Last year proved particularly favorable to the Malawi-Zambia-Rhodesia area, which claimed a 6.5-percent increase in total output. But it was a totally different scene in West Africa, which suffered another year of drought. Chad, Niger, Upper Volta, Mali, Senegal, and Mauritania had to request relief food supplies— mostly grain—from the United Nations' Food and Agriculture Organization and from individual country donors.

West Asian nations closed out '72 with a combined increase of 5 percent in gross farm output—slightly ahead of their long-term trend.

In Turkey, the region's chief producer, production declined on a per capita basis, though the country harvested a near-record wheat crop.

The bumper wheat harvest totaled some 9½ million tons, and came on the heels of the alltime record of a year earlier. As a result, Turkey reversed its traditional role of wheat importer to become a wheat exporter.

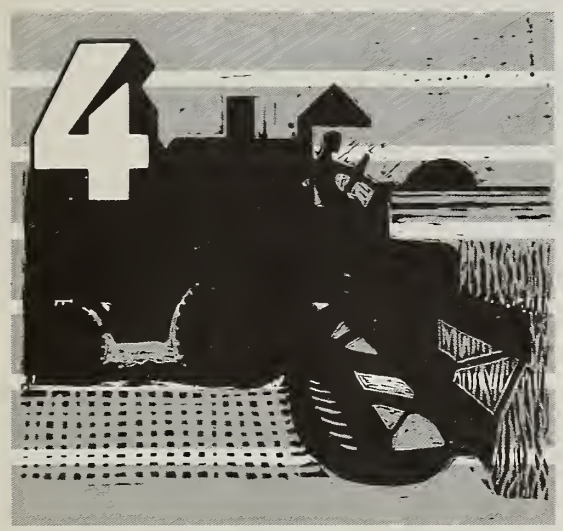
Turkey's cotton harvest was smaller than expected, though it narrowly missed the 1971 high. The olive crop shattered all previous records and numerous other crops fared well.

Exports surge. Turkish exports advanced nearly a third last year to $885 million, with agriculture contributing more than 70 percent. Cotton exports registered a strong upturn. But most noteworthy were wheat exports, which earned $12 million—compared with zero the year before.

Iran, the No. 2 producer in West

Asia, had a banner year, except for a setback in the livestock industry. Contrary to regional trends, per capita output rose a substantial 9 percent.

Right now, the farm sector's most pressing problem is to find ways and means to expand meat and dairy production. Several countries have expressed interest in establishing meat production centers in Iran, but so far no action's been taken. (*14*)



Bad weather dominated the farm picture in Communist countries last year, paring down production in the USSR, Yugoslavia, and the People's Republic of China.

Soviet slowdown. In the USSR, total agricultural output fell 4-5 percent from its year-earlier record. Grains, potatoes, vegetables, and sunflowerseed suffered heaviest losses.

The USSR's livestock sector emerged from 1972 in reasonably good shape considering the poor weather conditions. Cattle numbers advanced 1-2 percent, but hog numbers dropped 7 percent. Meat output would have turned down also, but reduced feed supplies forced higher-than-expected livestock slaughter.

Imports of feedstuffs helped to stave off a massive drawdown in livestock numbers. The Soviets bought about 28 million tons of grain mainly for delivery in 1972/73.

The Soviets plan to boost 1973 farm output by 12.6 percent over last year's depressed level—a target some experts think too optimistic. If reached, the goal would beat the 1971 production record by 8 percent.

Except for Yugoslavia, where gross farm output dipped 1 percent, East Europe came through 1972 with flying colors.

Crops mixed. In the crop sector, grain and tobacco harvests hit record highs, and output of sugar beets, potatoes, vegetables, and fruits rebounded from 1971 levels. Production of sunflowerseed and rapeseed fared less well as foul weather touched down on major growing areas.

Good feed supplies teamed with favorable government livestock policies to boost hog and cattle inventories for the third straight year. Pork production jumped 15 percent pacing total meat output to a 10-percent gain over 1971.

Eastern Europe remained a net importer of farm commodities during 1972. Direct farm shipments from the U.S. during 1972 totaled $284 million, and record amounts of U.S. grain will enter the region in 1973.

This year, all East European nations plan to increase production, with goals ranging from a modest 1-3 percent in Hungary, Czechoslovakia, and Poland to 9 percent in Romania.

Stepped-up farm inputs failed to prevent some decline in farm production last year in the People's Republic of China, but results obtained in the face of the worst weather since 1968 were notable.

The full impact of 1972's reduced harvest can't be measured yet, but the Chinese government provided a key indication when it doubled grain imports—mostly wheat—to nearly 6 million tons during 1972/73. Grain purchases may remain higher than usual for the next couple of years.

China's official year-end report put '72 grain production at 240 million tons—down from the 246 million claimed for 1971.

Breakthrough. Last year marked the first time in 2 decades that China imported agricultural products from the U.S. These were valued at $58 million, and the Chinese in turn shipped us $16.5 million. (*15*)

Last year brought an abrupt end to 7 straight years of mounting farm production in Asia's developing countries.

Drought was the culprit, and proved responsible for smaller output in most countries throughout the Far East and Oceania. Only four nations—Japan, Malaysia, Taiwan, and New Zealand—upped their food production on a per capita basis. Losses in per capita output were heaviest in Cambodia (25 percent) and Thailand (15 percent).

Regional rice supplies tightened during the summer of '72, and shortages will probably persist through this year. Total rice production in the Far East dropped 8 percent to 103 million tons. India's crop sank to its lowest mark since 1966. Thailand, Indonesia, Nepal, and Cambodia also reported sharp dropoffs.

Rice stocks wane. Reduced rice supplies triggered strong demand for rice imports in Indonesia, the Philippines, and Bangladesh, wearing down exportable stocks in Thailand, Pakistan, Burma, and Japan. South Korea attempted to contain its rice demand by ordering restaurants to go "riceless" 2 days a week. Stocks throughout Asia now stand at their lowest level in 30 years.

The tight rice situation sent prices soaring and by early this year, rice cost 50 percent more than a year earlier. Prices aren't expected to retreat until late this year, assuming 1973 brings a good harvest.

Only Japan emerged from 1972 with record rice yields and sharply

expanded production. However, Japan continues to remove land from rice production in favor of fruits, vegetables, and livestock so that this years' crop should turn out considerably smaller.

India claimed a record spring wheat harvest in 1972/73, but a long summer drought trimmed food grain production by 8 percent. Due mainly to large grain shipments to Bangladesh in 1972, India's stocks slipped from nearly 9 million tons in July 1972 to less than 3 million this past March.

In a bind. India's food situation may become critical by October. The country is currently buying foreign grain and may have to import several million tons before the year is out.

In Australia, drought sharply curtailed crop output and ravaged pastureland, compelling producers to step up livestock slaughter rates. Nevertheless, export earnings from Australia's farm commodities rose to $2.8 billion and accounted for more than half the value of total exports. High world prices for some of the country's traditional exports—grain, meat, and wool—accounted for the gain.

Australia's agricultural shipments to the U.S. rose by more than a third last year. They were mainly responsible for a 9-percent increase in U.S.-bound exports from all of the Far East and Oceania. Other chief suppliers of the U.S. market were the Philippines, New Zealand, and Indonesia.

U.S. farm exports to the Far East and Oceania jumped 20 percent during 1972, reflecting in part the '71 slowdown caused by West Coast dock strikes. Japan was the biggest market with purchases of $1.4 billion, followed by South Korea and Taiwan. Wheat, soybeans and soy products, corn, and rice ranked among the top exports.

Expansion of U.S. farm trade with the region will probably prove more modest this year, though world currency realignments have strengthened the competitive position of U.S. goods on the world market. (*16*)

New Rice Strain To Please More Palates

Developing miracle rice strains is one thing. Getting people to like the rice is another.

Since 1966 the International Rice Research Institute (IRRI) at Los Banos in the Philippines has developed several new rice varieties that promise self-sufficiency for Asia's rice economy.

Though Asia still has a ways to go, great strides have been made in recent years. The food shortage in 1972-73 would have been far worse had it not been for the fast-growing, high-yielding rice varieties introduced by the IRRI.

But breeding better rice plants turns out to be just part of the battle.

Two of the early strains, IR-8 and IR-5, met with some success by consumers in countries which like dry and fluffy rices, including Sri Lanka (Ceylon), India, Burma, Thailand, and Vietnam.

Indonesians and Filipinos, on the other hand, prefer a rice that cooks soft and moist, as opposed to the dry and fluffy texture of IR-8 and IR-5. As a result, these varieties bring lower prices than comparable grades of traditional rices. And without the price incentive, farmers are not inclined to grow the new types of rice, high yields notwithstanding.

IRRI's response has been to develop a new variety which it calls IR-24. The fifth in a series, it boasts a low amylose content, meaning the cooked rice is soft and moist.

The grain of IR-24 is long, slender, and translucent—characteristics that bring premium prices from Asian rice eaters. IRRI tests show this newest strain yields 14 tons per acre during the wet season and 20 tons during the dry season when irrigation allows better water control. These yields exceed those of IR-24's forerunners in both seasons.

Besides coming up with new rice varieties that will appeal to the palates of all segments of the Asian population, IRRI is intent on breeding strains for greater tolerance to drought, deep water, and poor soil.

Also, work is underway to increase the protein content of rice from its current level of around 7 percent to as much as 10 percent. Since most Asians get over half their protein from rice, raising the protein ingredient would make a big contribution to better diets. (*17*)

U.S. Multilateral Aid Trends Upward

U.S. economic aid channeled through international organizations grew at a rapid pace over the last decade, as agricultural assistance expanded and diversified to meet changing needs of the 1970's.

In 1962, a total of $497 million—or 12 percent—of U.S. official economic assistance to developing countries was in the form of multilateral aid. By 1972, the figure more than doubled, to $1.1 billion, with almost a fourth of U.S. economic aid distributed this way.

The chief multilateral organizations—the World Bank, the United Nations Development Program, and the Inter-American Development Bank—have stepped up their agricultural activities. The three agencies increased their investment in agricultural projects from an annual average of less than $200 million in 1961–64 to more than $600 million in 1970–72.

At the same time, agricultural assistance programs are taking on a new character. For the World Bank and the Inter-American Development Bank, more emphasis is being put on livestock in addition to crops, and on projects to improve water supplies.

The World Bank has also inaugurated an economic research program dealing with such problems as world protein shortages and population pressures.

The Food and Agriculture Organization is strengthening its work in forestry and fisheries projects, and including agricultural trade as well as production problems of developing countries in its work program. (*18*)

The oxen of Brazil would seem to hold a short lease on life as more and more tractors appear on the agricultural scene.

SAO PAULO: CASE STUDY OF FARM MECHANIZATION

Brazil has swiftly traveled the road of farm mechanization over the past 10 years, with the State of Sao Paulo leading the way.

Tractor numbers in this Brazilian State, which is about the size of our State of Oregon, more than doubled during the sixties under the impetus of the government's mechanization program.

The 66,000 tractors operating in 1970 comprised over 40 percent of the entire tractor fleet in Brazil. That works out to one tractor for every 200 acres of cropland in Sao Paulo State compared with one tractor for more than 450 acres in 1960.

The jump in tractor numbers was due to many catalysts, but chiefly to the establishment of a domestic tractor industry, improved farm incomes, subsidized credit, and removal of domestic taxes on tractors.

Sao Paulo's mechanization story really began in the 1950's when the government gave farmers a break in buying tractors from other countries. Through granting preferential exchange rates, the price of an imported tractor was reduced.

By 1960 Brazil's import policy had brought in 157 different tractor models. Farmers, though, had a hard time getting spare parts, not to mention difficulties in servicing the imported machinery. As a result, many tractors were abandoned in the fields.

Starting its own tractor industry was deemed the solution by the government. The idea also dovetailed with another objective — economic development through industrialization. So, officials invited seven firms —including two from the U.S.—to set up tractor factories in Brazil on the understanding that 70 percent of the parts would be locally produced.

Production began in late 1960 with 37 tractors, and by 1964, it had reached over 11,500 units. Brazil protected its young industry by restricting imports except for crawler tractors.

The initial success of the industry was based on providing generous credit to farmers and manufacturers. Farmers also benefited from rapid inflation (84 percent in 1964) which enabled them to quickly pay their debts.

The tractor business showed no growth during 1964–69, when a new government managed to slow the galloping inflation. But at the same time, the government took measures to boost farm income. In 1972, tractor sales for all of Brazil were estimated at more than 34,000, compared with an average of 9,000 during 1964–69. Farmers in 1972 got exceptionally high prices for the full range of products.

In 1969, additional steps were taken to promote tractor usage. Brazil's Central Bank provided special low-interest credit to the entire network of private banks to finance tractor sales.

Also, the government exempted from a value added tax all domestic and import models of tractors, cultivators, farm implements, and machinery.

Within a few months after this action, the Sao Paulo list price for a 40–50 horsepower tractor had dropped 15 percent to $4,060, about $800 less than the similar models cost in the U.S. (*19*)

agriculture and the energy crisis

In relative terms, agriculture is not a major consumer of energy. But the amounts it uses are critical. While no severe shortages may occur this year, ERS says it is less certain about the future.

Energy is the most basic of a farmer's raw materials.

Without diesel fuel, the large tractors that do the bulk of the planting work could not operate. Without gasoline, farmers would be unable to use forage harvesters and combines to harvest their crops, much less get them to market. If electricity were cut off, irrigation pumps, milking machines, ensilage blowers, and a host of other machines essential to agriculture would come to a standstill—and with them the Nation's farming operation.

Threats of an energy crisis in agriculture may not reach disaster proportions this summer.

But ERS experts say there is already a shortage of fuel in the pipeline. And even if farmers can get through this season without much trouble, they are fearful for the years ahead.

The ultimate farm tool. Farmers have become increasingly dependent on energy. In 1939, for every man-hour of labor on the farm, fuel use was less than a tenth of a gallon. By 1972, over 1 gallon of fuel was expended for every man-hour—more than a tenfold increase.

In relative terms, agriculture is not a major user of fuel from petroleum. Farmers accounted for less than 3 percent of all the petroleum used in the U.S. in 1969. However, that year 2.6 million farmers reported spending $1.9 billion on petroleum fuel and oil for the farm business. Last year, farmers used about 7 billion gallons of fuel—4 billion of gasoline and 2.2 billion of diesel fuel. The remainder was primarily LP gas (propane and butane) and kerosene.

The importance of diesel fuel is especially great. Virtually all of the larger, more powerful farm tractors now run on diesel fuel. Diesel trac-

tors do the bulk of land fitting and planting work. Any tight supply of diesel fuel would create real problems for farmers.

When it comes to electrical power, farmers use about 2.7 percent of the U.S. total. Electricity is essential to run ensilage blowers and unloaders, bale elevators, grain augurs, and the like.

The fact that U.S. farmers take less than 3 percent of both the Nation's petroleum fuel and its electricity does not mean, however, that agriculture can afford to be wasteful. Any difficulties in securing farm energy sources could have a critical effect on farming and those dependent on it.

What could happen. During the 1940's a feed shortage in the Northeast was instrumental in eliminating from the farm scene a number of small firms that could not obtain feed. ERS economists say the same thing might happen if the fuel shortage grows: that is, there may be a tendency to service the larger accounts to the detriment of the small ones.

In the case of custom combine operators, for example, any difficulties they experience in obtaining fuel would be felt most by small and medium-sized farmers, who are their chief customers. Most large farmers have their own machines and do not need to hire the custom operators.

While USDA has little information on the amount of fuel stored on farms (or, for that matter, the ability of the farmer to store fuel), insufficient supplies during the peak demand periods in spring and early summer would be likely to hit the small farmer the hardest. This is because the time required to deliver fuel, and the billing and paperwork involved, is as great for the farmer taking 1,000 gallons as for the farmer taking 7,000 gallons.

There are currently some shortages of diesel fuel. There are also indications that gasoline will be less plentiful for the remainder of the season. But while the consensus may be that farmers can weather this year's energy crisis with no great trouble, the future is less certain.

Fueling future needs. With farming taking such a small share of the Nation's petroleum and electricity, solutions to the energy problem will have to originate mainly outside of agriculture.

However, ERS economists say there are steps agriculture can take to ease the crisis:

√ Adopt reduced tillage practices. Every time the farmer eliminates a trip across the field, he reduces the amount of fuel he needs.

√ Continue the switch to diesel-powered tractors. It takes 36 percent more gasoline to do the same task that a gallon of diesel fuel will do.

√ Expand the use of airplanes for certain seeding, fertilizing, and pesticide applications. In many instances, custom aircraft application uses less fuel than ground methods.

√ Optimize the use of solar energy in crop production by proper spacing of plants to catch more sunlight.

By 1980, farm use of fuel is expected to grow to 9 billion gallons—45 percent over the present amount. Making sure that this fuel is available is of paramount importance in meeting the Nation's energy needs. For, in the words of one newspaper editorial, "In any rational order of priorities none is higher than that of the great lines of reapers and combines that sweep from Texas northward toward Saskatchewan." (*20*)

Waste Into Energy

Maybe you can't make a silk purse out of a sow's ear. But how about generating energy from cow manure?

ERS economists say that gas derived from animal waste may be a promising energy source in the future. The U.S. Bureau of Mines is currently developing technology to convert solid waste to clean energy. The process involves mixing dried manure with hydrogen, which reacts to form methane and ethane, the major constituents of natural gas. Technically, it's called "hydrogasification of cattle manure to pipeline gas."

There are other possible energy sources on the farm.

During World War II when fuel was in short supply, alcohol was produced from grain and potatoes. When the war ended the practice fell by the wayside, but some experts feel it may be time to re-examine this and other means of producing fuel from agricultural commodities. (*21*)

Who Lives in Rural Substandard Housing? Study Gives Breakdown

Of the 2.6 million rural families who lived in substandard housing in 1970, nearly half had incomes below the poverty level.

A new study by USDA's Rural Development Service gives a number of details on these families who, for the most part, aren't reached by current Federal credit programs.

Overall, there were about 20 million households in rural areas in 1970, 4.1 million with incomes below the poverty level. Of these 4.1 million, 1.3 million (31 percent) lived in inadequate housing—in this case, houses without complete plumbing. In a breakdown of these 1.3 million households, the study found—

About 64 percent were white and 36 percent were black.

About 60 percent of the housing was owned and the rest was rented.

Of those households renting, more than 7 out of 10 paid less than $50 a month for rent or paid no cash rent. The study suggested that these units are not apt to be improved without raising the rent because they require extensive repairs; and if the rents are increased, the tenants may not be able to afford them.

Of the households with inadequate housing but incomes above the poverty level, about half owned their homes and half rented.

Nearly 80 percent of these households where white and 20 percent were black.

On a regional basis, 3 out of the

10 Standard Federal Regions had about 75 percent of the households with both inadequate housing and incomes below the poverty level.

Region IV had more than 581,000 such households, about equally divided between blacks and whites. This region covers North and South Carolina, Georgia, Florida, Kentucky, Tennessee, Alabama, and Mississippi.

Region VI had more than 211,000 households in this category, about 55 percent of them white and 45 percent black. This covers Arkansas, Louisiana, Oklahoma, Texas, and New Mexico.

Region III had about 152,000 such households—75 percent of them white and 25 percent black. This region covers Pennsylvania, Delaware, Maryland, Washington, D.C., Virginia and West Virginia. (*22*).

Local Property Tax Under Fire As Schools' Major Fund Source

The property tax has been on trial, so to speak, as a method for funding the Nation's schools. The issue of replacing the local property tax as the major source of public education funds has come up before, but most recently it has been upheld by court decisions.

In 1971, the California Supreme Court ruled that the system of financing local schools in California, which relies heavily on the property tax, unconstitutionally "conditions the full entitlement to such interest on wealth, classifies its recipients on the basis of their collective affluence and makes the quality of a child's education depend upon the resources of his school district and ultimately upon the pocketbook of his parents."

In March of this year, however, the U.S. Supreme Court overturned a lower court ruling in a Texas case similar to the one in California, finding that the Texas system of school finance did not violate the equal protection clause of the 14th Amendment. It seems likely that the effect of this decision will be to transfer the issue to the State legislatures.

One USDA economist suggests that the State legislatures will find that they have a knotty problem on their hands. One suggestion is to let local governments use alternative taxes, such as the income tax and the sales tax. But there is evidence that these taxes suffer from the same problems of unequal distribution among school districts that have caused the property tax controversy. Thus, the economist concludes, if State governments want to equalize education finances, they may find it necessary to take a bigger role in funding education.

Three alternatives are commonly suggested for State taxes to finance education—a State-wide property tax, a State income tax, and a State sales tax. These alternatives can be compared on a basis of their conformance with (1) social justice; (2) established economic goals such as full employment, price stability, and optimal allocation of resources; (3) ease of administration and compliance; and (4) revenue adequacy. Each tax has its advantages and disadvantages under these criteria.

For example, the sales tax usually is regressive. In order to reduce this problem, 18 States fully or partly exempt food from the sales tax, and 30 do the same thing for medicine. A more recent trend is to provide credit through the income tax for the first so many dollars of sales taxes paid. Seven States now do this.

The income tax has the advantage in good times that its revenues grow more rapidly as people's incomes rise than do sales taxes or property tax revenues. In bad times, however, this may be a disadvantage—revenues also fall more rapidly as incomes sink.

A State-wide property tax would almost require a change to State assessment, in order to assure that assessments were uniform throughout the State. This might improve property tax administration in many areas, but it might also be viewed as an unacceptable loss of local control.

Even if the legislature solves the problem of raising revenue, it still must face a whole new set of problems in designing ways to distribute that revenue as school aid. (*24*)

"Instant" Homes Big in Rural Areas

Mobile homes are gaining prominence in the Nation's rural housing picture as the house on wheels rolls deeper into the countryside.

A USDA study based on the 1970 Census reports that nearly 8 percent of all rural residences were of the mobile home variety compared with under 4 percent for the Nation as a whole.

This study also says most States from Colorado westward to California have a higher percentage of mobile homes in their rural areas than States east of the Continental Divide.

Nevada leads the Nation in this respect with mobile homes accounting for 27 percent of that State's rural housing units in 1970.

Other States where mobile homes are important in rural areas include Arizona (21 percent of all units in 1970), Florida (19 percent), Wyoming (18 percent), and Delaware (15 percent).

Evidence of the mobile home's popularity is the boom in sales, which shot from 118,000 units in 1962 to 583,000 last year.

A 1971 Urban Land Institute study suggests some of the factors behind this growth:

√ The Interstate Highway System has eased delivery of mobile units.

√ Improved factory production techniques have reduced costs.

√ Mass markets have emerged both for low-cost housing for younger and older families and for second homes.

√ Larger corporations have been attracted to the housing market.

Another factor may be the ease of financing a mobile home. Buyers

can finance the entire cost (minus downpayment) — including furnishing and appliances—with a single loan. Many additional costs such as title searches and lawyer fees are not required for a mobile home purchase.

Contrary to popular opinion, mobile homes nationally are not widely used by retired persons with the notable exceptions of Florida, California, and Arizona. In 1970 10 percent of nonmetropolitan mobile home households and 16 percent of all nonmetropolitan households were headed by persons 65 years or older.

Nationwide, the average household head was under 35 years of age and nearly all were whites. While blacks headed 7 percent of all households in nonmetropolitan areas in 1970, they accounted for only one-half of 1 percent of mobile home dwellers.

All considered, do owners like mobile home living? In a 1970 study, 70 percent of those asked that question said they were either "extremely satisfied" or "very satisfied." Only 8 percent were "not satisfied" or "not at all satisfied." (*23*)

Recent Publications

Single copies of the publications listed here are available free from The Farm Index, Office of Management Services, U.S. Department of Agriculture, Washington, D.C. 20250. However, publications indicated by (*) may be obtained only by writing to the experiment station or university. For addresses, see the July and December issues of The Farm Index.

Pakistan's Agricultural Development and Trade. Amjad H. Gill, Foreign Demand and Competition Division. ERS–For. 347.

Recent trends and developments in Pakistan's agricultural production and trade are discussed. The two major goals of the Pakistani Government are to attain self-sufficiency in food and to earn sufficient foreign exchange to maintain agricultural and industrial development.

The Agricultural Situation in Communist Areas: Review of 1972 and Outlook for 1973. Foreign Demand and Competition Division. ERS–For. 350.

The Agricultural Situation in the Western Hemisphere: Review of 1972 and Outlook for 1973. ERS–For. 351.

The Agricultural Situation in Western Europe: Review of 1972 and Outlook for 1973. ERS–For. 352.

The Agricultural Situation in the Far East and Oceania: Review of 1972 and Outlook for 1973. ERS–For. 353.

The Agricultural Situation in Africa and West Asia: Review of 1972 and Outlook for 1973. ERS–For. 354.

These studies summarize major developments in the particular areas. Emphasis is on production, trade, and policy changes in 1972, especially for those matters of greatest interest to the U.S.

The Hired Farm Working Force of 1972: A Statistical Report. Robert C. McElroy, Economic Development Division. AER–239.

This report presents information on the size and composition of the 1972 hired farm working force (HFWF) and on employment and cash earnings from farm and nonfarm wagework obtained during the year.

Indices of Agricultural Production for the Western Hemisphere Excluding the United States and Cuba: 1963 Through 1972. Foreign Demand and Competion Division. ERS–For. 264 (Revised April 1973).

Indices of agricultural production in this statistical publication were prepared as part of a continuing assessment of the current agricultural situation abroad.

Farm Machinery and Equipment Costs in the Southwest Louisiana Rice Area. Willard F. Woolf, Arthur R. Gerlow, and James C. Larrison, Louisiana State University, cooperating with Farm Production Economics Division. DAE Research Report No. 449.*

The primary concern of this report was to determine costs of owning and operating different sizes of machinery and equipment and equipment complements on different size farms in the Southwest Louisiana Rice Area.

Fruits: Production, Use, Value. Part I, Noncitrus 1971-1972. Statistical Reporting Service. FRNT 2–1(73).

This report presents statistics on production, utilization, price, and value for apricots, cherries, figs, grapes, nectarines, peaches, pears, persimmons, plums, pomegranates, and prunes. These 11 noncitrus crops usually represent about two-thirds of the total noncitrus fruit tonnage. Tonnage for the 11 crops in 1972 amounted to 5.2 million tons, 28 percent less than 1971.

Demand for Farm-Raised Channel Catfish in Supermarkets: Analysis of a Selected Market. Richard C. Raulerson and Warren K. Trotter, Marketing Economics Division. MRR–993.

The objectives of this research conducted in March and April 1972 were to estimate demands for farm-raised channel catfish in supermarkets; obtain the resulting price elasticities; combine these two factors to determine the potential for catfish farming; and to develop information for the use as a planning aid for future market research.

Trading in Onion Futures: Effect on Cash Prices. Edward Jesse, Marketing Economics Division. ERS–516.

This reprinted article reports the results of an extensive study of the behavior of cash market prices for dry onions, a perishable commodity which was traded on the Chicago Mercantile Exchange from 1942 until a Congressional ban on trading became effective in 1959.

U.S. Soybean Economy in the 1980's. George W. Kromer, Economic and Statistical Analysis Division. ERS–518.

Sharp increases in the demand for U.S. soybeans and products are projected during the next 10 to 15 years as domestic and export requirements expand. This long-run appraisal of the demand for soybeans—resulting from an assumed continuation of present farm programs, technology, and other economic forces—points up the need for shifting more U.S. acreage into soybean production.

Selected U.S. Crop Budgets—Yields, Inputs, and Variable Costs: Volume VI Southwest Region. Walter W. Pawson, Farm Production Economics Division. ERS–514.

This report contains estimates of variable costs of producing major irrigated field crops in seven production areas of the Southwest region of the U.S. The crops are upland cotton, American-Pima cotton, barley, grain sorghum, corn, wheat, alfalfa hay, and safflower. Data concerning crop yields and rates of fertilization are also included in the study.

Article Sources

Readers are invited to write for the complete reports, studies, speeches, or papers on which we base our articles. Authors and titles are listed below, preceded by numbers corresponding to those appearing at the end of stories in this issue. Those publications indicated by (*) are obtainable only from the university or experiment station cited. The word "manuscript" after an item denotes a forthcoming publication, which we will send you when it comes off press. "Special material" after an item means the article was researched specially for this magazine, although additional information is generally available. Address all inquiries to The Farm Index, Office of Management Services, U.S. Department of Agriculture, Room 1459, Wash., D.C. 20250.

1. Floyd F. Niernberger, MED. Factors in Wheat Purchasing by Flour Mills (manuscript).
2. Ben W. Huang, ESAD. *Fruit Situation*, TFS–186, February 1973.
3. Stephen Raleigh, MED. "Changing Patterns in the U.S. Carnation Industry" (speech at 79th annual convention of the American Carnation Society, Washington, D.C., March 1, 1973).
4. Elizabeth D. White, MED, and Louis B. Rockland, Agricultural Research Service, Western Regional Research Laboratory. Consumer Acceptance of Quick-Cooking Frozen Beans (manuscript).
5. Don Seaborg, ESAD. *Livestock and Meat Situation*, LMS–191, May 1973.
6. Johnny D. Braden, ESAD. "Analysis of Tobacco Quota Transfers" (speech to 1973 National Agricultural Conference, Wash., D.C., February 1973).
7. *Poultry and Egg Situation*, PES–276, April 1973.
8. Forest G. Warren and Nan P. Mitchem, FPED. *Farm Mortgage Lending*, FML–30, May 1973.
9. Vera J. Banks and Calvin L. Beale, Economic Development Division, Rural Development Service. Farm Population Estimates for 1910–70 (manuscript).
10. Wylie D. Goodsell and Macie Belfield, FPED. Costs and Returns, Migratory Sheep Ranches, Utah–Nevada, 1972 (manuscript).
11. R. Gar Forsht, NRED, and Clark R. Burbee, MED. "Environmental and Economic Aspects of Recycling Poultry Layer Waste as Feed" (paper submitted to Southern Agricultural Economics Association); also, R. Gar Forsht, NRED, Clark R. Burbee, MED, and William M. Crosswhite, NRED. Recycling Poultry Waste As Feed: Will It Pay? (manuscript).
12. FDCD. *The Agricultural Situation in the Western Hemisphere: Review of 1972 and Outlook for 1973*, ERS–For. 351.
13. FDCD. *The Agricultural Situation in Western Europe: Review of 1972 and Outlook for 1973*, ERS–For. 352.
14. FDCD. *The Agricultural Situation in Africa and West Asia: Review of 1972 and Outlook for 1973*, ERS–For. 354.
15. FDCD. *The Agricultural Situation in Communist Areas: Review of 1972 and Outlook for 1973*, ERS–For. 350.
16. FDCD. *The Agricultural Situation in the Far East and Oceania: Review of 1972 and Outlook for 1973*, ERS–For. 353.
17. E. Wayne Denney, FDCD (special material).
18. Martin Kriesberg, FDD. Multilateral Assistance for Agricultural Development (manuscript).
19. Samuel O. Ruff, FDCD (special material).
20. Earle E. Gavett, FPED. "Agriculture and the Energy Crisis" (paper presented at the National Conference on Agriculture and the Energy Crisis, Lincoln, Neb., April 10–11, 1973).
21. Earle E. Gavett, FPED (special material).
22. Ronald Bird, Economic Development Division, Rural Development Service. Inadequate Housing and Poverty Status of Households in Areas Served by Farmers Home Administration Programs, 1970, by States (manuscript).
23. James J. Mikesell, Economic Development Division, Rural Development Service (special material).
24. Thomas F. Hady, Economic Development Division, Rural Development Service. Alternatives to the Local Property Tax for Educational Finance (manuscript).

NOTE: Unless otherwise indicated, authors are on the staff of the Economic Research Service (ERS) with their divisions designated as follows: Economic and Statistical Analysis Division (ESAD); Farm Production Economics Division (FPED); Foreign Demand and Competition Division (FDCD); Foreign Development Division (FDD); Marketing Economics Division (MED); and Natural Resource Economics Division (NRED).

Economic Trends

Item	Unit or Base Period	1967	1972 Year	1972 Mar.	1973 Jan.	1973 Feb.	1973 Mar.
Prices:							
Prices received by farmers	1967=100	—	126	120	144	149	159
Crops	1967=100	—	116	108	131	132	140
Livestock and products	1967=100	—	133	129	153	161	174
Prices paid, interest, taxes and wage rates	1967=100	—	127	124	134	136	138
Family living items	1967=100	—	124	123	129	131	132
Production items	1967=100	—	122	119	132	134	138
Ratio [1]	1967=100	—	99	97	107	110	115
Wholesale prices, all commodities	1967=100	—	119.1	117.4	124.5	126.9	129.7
Industrial commodities	1967=100	—	117.9	116.8	120.0	121.3	122.7
Farm products	1967=100	—	125.0	119.7	144.2	150.9	160.9
Processed foods and feeds	1967=100	—	120.8	118.6	132.4	137.0	141.4
Consumer price index, all items	1967=100	—	125.3	124.0	127.7	128.6	129.8
Food	1967=100	—	123.5	122.4	128.6	131.1	134.5
Farm Food Market Basket: [2]							
Retail cost	1967=100	—	121.3	120.4	127.2	130.4	134.9
Farm value	1967=100	—	124.4	120.6	140.3	144.9	154.7
Farm-retail spread	1967=100	—	119.3	120.3	118.9	121.2	122.3
Farmers' share of retail cost	Percent	—	40	39	43	43	44
Farm Income: [3]							
Volume of farm marketings	1967	100	111	87	126	86	86
Cash receipts from farm marketings	Million dollars	42,693	58,550	3,862	6,033	4,618	5,000
Crops	Million dollars	18,434	24,233	1,081	2,760	1,571	1,500
Livestock and products	Million dollars	24,259	34,317	2,781	3,273	3,047	3,500
Realized gross income [4]	Billion dollars	49.0	66.4	64.1	—	—	75.6
Farm production expenses [4]	Billion dollars	34.8	47.2	45.6	—	—	53.5
Realized net income [4]	Billion dollars	14.2	19.2	18.5	—	—	22.1
Agricultural Trade:							
Agricultural exports	Million dollars	—	9,404	668	1,136	1,179	1,408
Agricultural imports	Million dollars	—	6,459	507	649	615	659
Land Values:							
Average value per acre	Dollars	[6]168	[7]216	—	—	—	—
Total value of farm real estate	Billion dollars	[6]181.9	[7]228.1	—	—	—	—
Gross National Product: [4]	Billion dollars	793.9	1,151.8	1,109.1	—	—	1,235.5
Consumption	Billion dollars	492.1	721.0	696.1	—	—	773.7
Investment	Billion dollars	116.6	180.4	168.1	—	—	199.4
Government expenditures	Billion dollars	180.1	254.6	249.4	—	—	266.8
Net exports	Billion dollars	5.2	—4.2	—4.6	—	—	—4.4
Income and Spending: [5]							
Personal income, annual rate	Billion dollars	629.3	935.9	913.6	985.6	994.5	1,001.2
Total retail sales, monthly rate	Million dollars	26,151	37,365	36,450	40,707	41,305	42,274
Retail sales of food group, monthly rate	Million dollars	5,759	7,918	7,720	8,476	8,435	—
Employment and Wages: [5]							
Total civilian employment	Millions	74.4	[8]81.7	[8]81.2	[8]82.6	[8]83.1	[8]83.9
Agricultural	Millions	3.8	[8]3.5	[8]3.5	[8]3.5	[8]3.4	[8]3.5
Rate of unemployment	Percent	3.8	5.6	5.9	5.0	5.1	5.0
Workweek in manufacturing	Hours	40.6	40.6	40.4	40.3	40.9	40.9
Hourly earnings in manufacturing, unadjusted	Dollars	2.83	3.81	3.74	3.98	3.97	3.98
Industrial Production: [5]	1967 = 100	—	114	111	120	121	122
Manufacturers' Shipments and Inventories: [5]							
Total shipments, monthly rate	Million dollars	46,449	62,356	60,335	68,299	69,123	69,778
Total inventories, book value end of month	Million dollars	84,599	107,047	102,450	107,549	108,414	109,591
Total new orders, monthly rate	Million dollars	46,763	63,368	61,097	69,838	71,042	73,043

[1] Ratio of index of prices received by farmers to index of prices paid, interest, taxes, and farm wage rates. [2] Average annual quantities of farm food products purchased by urban wage-earner and clerical worker households (including those of single workers living alone) in 1959–61—estimated monthly. [3] Annual and quarterly data are on 50-State basis. [4] Annual rates seasonally adjusted first quarter. [5] Seasonally adjusted. [6] As of March 1, 1967. [7] As of March 1, 1972. [8] Beginning January 1972 data not strictly comparable with prior data because of adjustment to 1970 Census data.

Sources: U.S. Dept. of Agriculture (Farm Income Situation, Marketing and Transportation Situation, Agricultural Prices, Foreign Agricultural Trade and Farm Real Estate Market Developments); U.S. Dept. of Commerce (Current Industrial Reports, Business News Reports, Monthly Retail Trade Report and Survey of Current Business); and U.S. Dept. of Labor (The Labor Force and Wholesale Price Index).

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